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Central Intelligence Agency



Washington, D.C. 20505

85-2386/1

70-1

OC-0659-85
11 July 1985

MEMORANDUM FOR: Colonel Charles L. Flynn, USAF
Director, Electromagnetic Compatibility
Analysis Center
Department of Defense

SUBJECT: EMPRESS Data Base and Model Survey

REFERENCE: Your Memo dated 1 July 1985, Same Subject

1. The Central Intelligence Agency response to questions posed by the questionnaire attached to the reference is negative on all points.

2. Further correspondence on this subject should be addressed to the Director of Communications.



~~Director of~~ Communications

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SUBJECT: EMPRESS Data Base and Model Survey

ORIG:C/OC-OPS: (11 July 1985)

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REMARKS

cc: Director / OIT
~~of Communications~~

Please prepare direct response with
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NLT 31 July 1985.

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SUSPENSE _____
Date

Remarks

For direct response please. (See Para #5,
requested NLT 31 Jul 85).

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Executive Secretary

FOR 5 Jul 85

Date

3637 (10-81)



ELECTROMAGNETIC COMPATIBILITY ANALYSIS CENTER
North Severn, Annapolis, Maryland 21402-1187

Executive Registry
85-2646

01 JUL 1985

85-2386

REPLY TO
ATTN OF: CC

SUBJECT: EMPRES Data Base and Model Survey

TO: DISTRIBUTION

1. References:

a. ASD (C³I) Memorandum, 15 Mar 85, DOD Electromagnetic Performance Evaluation Steering Committee (Atch 1).

b. EMPRES Steering Committee Meetings of 5 April 85, 23 April 85, 14 May 85, 4 June 85 and 25 June 85.

2. The referenced ASD (C³I) Memorandum, identified a requirement for DOD to have an accurate and comprehensive understanding of how C³I systems interact and perform in large, dynamic electromagnetic environments. The memorandum tasked the DOD Electromagnetic Compatibility Analysis Center to chair a DOD Electromagnetic Performance Evaluation System (EMPRES) Steering Committee consisting of a representative from the Services, JCS, OSD, DIA, NSA, JTC³A, and JEWG. Attachment 2 identifies the members of the EMPRES Steering Committee. The task of this committee is to prepare an Integrated Program Plan (IPP) which addresses the development and implementation of a DOD capability to more effectively evaluate the performance of C³I electronic systems deployed in large, dynamic, electromagnetic environments. Specifically, the IPP will describe the organizational structure, areas of responsibility, working relationships, electronic connectivity, administrative and technical procedures, required analysis and data base capabilities, and funding necessary for the development and implementation of a DOD EMPRES. Each of the ref. a, addressess was tasked to share responsibility for the preparation of the IPP. The IPP will be submitted to ASD C³I for review and approval on 1 October 1985.

3. The first meeting of the Committee was held on 5 April 1985. The result of this meeting was the formalization of the EMPRES Steering Committee membership and the establishment of working groups to address the pertinent elements of the proposed system. These essential program elements were defined as the following:

- a) DOD Deployment Scenarios
- b) EM System Characteristics and Susceptibility Data Bases
- c) Analysis Models and Evaluation Techniques
- d) Computer and Communications Networks
- e) Measurement and Simulation Facilities
- f) Validation via DOD Exercises
- g) Organization and Administration
- h) Funding and Schedule

The function of the working groups is to define the overall EMPRES requirements, identify and catalog existing DOD capabilities, and identify the shortfalls between requirements and capabilities. The findings of the working groups will constitute the majority of the Integrated Program Plan.

4. The Steering Committee, at subsequent meetings formulated a draft statement of overall function and scope of the EMPRES which is provided for your information:

"The DOD Electromagnetic Performance Evaluation System (EMPRES) will provide the DOD military services with the capability to evaluate the performance of Command, Control, Communications and Intelligence (C³I) systems in operational environments. Prospective users within the C³I structure are research and development managers and operational commanders. EMPRES will address information and communications, C³CM, intelligence, electronic warfare and weapon systems. The C³I performance model encompassed by EMPRES will account for potential electromagnetic (EM) interactions, and will provide for the consideration of other elements that influence C³I performance. EMPRES will address the dynamic nature of C³I environments in the spatial, spectral and temporal domains.

EMPRES will consist of a collection of distributed data bases, analysis capabilities, and supporting measurement and simulation facilities/programs. The structure of EMPRES will allow the interaction of existing data bases and analysis capabilities among participating organizations. These resources will be connected via communications network(s) linked to interface units, user terminals and computers. EMPRES will provide both a near-term and far-term frame work within which current and evolving modeling efforts can use existing data bases and analysis capabilities, thus, minimizing duplication of effort. EMPRES will be a system through which C³I analysis capabilities and supporting

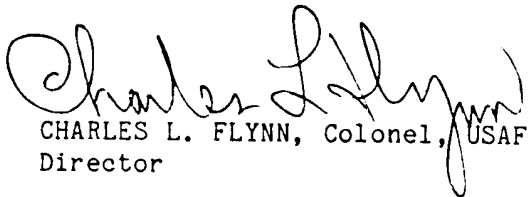
data bases, which have been developed and used independently by many DOD and military organizations, will be identified and made mutually accessible to organizations with C³I analysis requirements."

5. The EMPRES Steering Committee has directed that a survey of various DOD organizations and facilities be made in order to identify potential participants and/or contributors to the EMPRES. Toward this end the attached questionnaire (atch 2) has been prepared to assist in the identification of those organization/facilities which may contribute to and or benefit from the planned EMPRES capabilities. Please forward, as soon as possible, but NLT 31 July 1985, your response to the questionnaire along with any available lists/catalogs of C³I model and data base assets to the POC identified below.

6. The EMPRES Steering Committee POC for the survey is Lieutenant Colonel Tom Seale or Mr Tom Willey, AUTOVON 281-2353. The survey responses (classified up to and including SECRET) are to be forwarded to:

Director
Electromagnetic Compatibility Analysis Center
Attn: XMT/Mr T. Willey
North Severn
Annapolis MD 21402-1187

Any responses containing material classified above the SECRET level should be forwarded in accordance with the appropriate DOD regulation (DOD 5200.1-R/AF Reg 205-1).


CHARLES L. FLYNN, Colonel, USAF
Director

- 4 Atch
1. ASD(C3I) Memo, 15 Mar 85
2. Steering Committee Roster
3. EMPRES Questionnaire
4. Distribution list



ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-3040

COMMAND, CONTROL,
COMMUNICATIONS
AND
INTELLIGENCE

15 MAR 1985

MEMORANDUM FOR CHAIRMAN, JOINT CHIEFS OF STAFF
UNDER SECRETARY OF THE ARMY
UNDER SECRETARY OF THE NAVY
UNDER SECRETARY OF THE AIR FORCE
DIRECTOR, DEFENSE INTELLIGENCE AGENCY
DIRECTOR, JOINT TACTICAL COMMUNICATION, COMMAND AND CONTROL
AGENCY
DIRECTOR, NATIONAL SECURITY AGENCY
DIRECTOR, ELECTROMAGNETIC COMPATIBILITY ANALYSIS CENTER
DIRECTOR, JOINT ELECTRONIC WARFARE CENTER
DIRECTOR, JOINT STAFF, OJCS
DIRECTOR, DEFENSE TEST AND EVALUATION, USDR

SUBJECT: DoD Electromagnetic Performance Evaluation Steering Committee


DoD's increased reliance on electronic C³I systems which use identical portions of the electromagnetic spectrum, coupled with the global nature of military operations, emphasizes the need to design systems and develop military tactics which minimize (within practical limits) the mutual interference between the C³I systems. This need becomes more acute when one considers the complexity (i.e., spread spectrum C³I systems, multi-function radars, multi-frequency band surveillance systems, smart and expendable jammers); density (i.e., hundreds of radars, thousands of C³I systems, thousands of expendable jammers); and dynamics (i.e., frequency hopping C³I systems, airborne and space surveillance systems, high speed aircraft and missiles) of the electromagnetic environment in which these C³I systems are expected to operate.

Because of the complexity of today's electromagnetic environment and the rapid technological changes that are occurring, we are concerned about the operational effectiveness of our C³I systems. There exist within DoD techniques and simulations for assessing the mutual interference between selective and limited numbers of C³I systems. Unfortunately, technical voids exist and none of these techniques or simulations consider the total complex, dynamic electromagnetic environment. An accurate and cohesive understanding of how the C³I systems interact and perform in large, dynamic electromagnetic environments is not available.

Atch 1

I believe that digital computers have advanced to the point where the total electromagnetic environment of tactical C3I deployments can be modeled accurately to evaluate the mutual interference between all the systems. Because of the expertise and capabilities required, a cooperative working relationship between several Joint and Service organizations will be necessary. "Pockets" of knowledge and capabilities exist within DoD and industry, but a DoD program is needed to orchestrate this knowledge to better predict the performance and tactical utility of DoD C3I electronic systems. A properly organized combination of analysis, simulation, testing and validation is necessary; also, technical data bases and engineering expertise must be shared more completely.

I have tasked the Electromagnetic Compatibility Analysis Center to chair a DoD joint steering committee which will prepare an Integrated Program Plan (IPP) addressing the development and implementation of a DoD capability which better defines the performance of C3I electronic systems deployed in large, dynamic electromagnetic environments. Each of the addressees must share responsibility for the preparation of the IPP. I request that you identify a representative to serve as a member of the DoD Electromagnetic Performance Evaluation Steering Committee. Since a Steering Committee meeting is planned for 5 Apr 85, the name of your representative should be provided to Director, Electromagnetic Compatibility Analysis Center, AUTOVON 281-2456 by 20 Mar 85. Our goal is to have a final IPP available for review and approval by ASD(C3I) by 1 Oct 85. My point of contact for this action is Mr. James H. Atkinson, (202) 695-1209.


Donald C. Latham

DOD ELECTROMAGNETIC PERFORMANCE EVALUATION STEERING COMMITTEE

DIRECTOR, ELECTROMAGNETIC COMPATIBILITY ANALYSIS CENTER	COL CHARLES FLYNN (CHAIRMAN)	DOD ECAC/CC AV 281-2456
UNDER SECRETARY OF THE ARMY	MR EARL HOLLIMAN	HQDA/DAIM-SM AV 225-3533
UNDER SECRETARY OF THE NAVY	MR JIM CAUFFMAN	NAVELEX/CODE 614 (202) 692-0701
UNDER SECRETARY OF THE AIR FORCE	COL JAMES F. LEMON	HQ USAF/XOE (202) 697-9390
DIRECTOR, DEFENSE INTELLIGENCE AGENCY	<div></div> MR FRED SOMMERING	DIA/DT AV 243-4790
DIRECTOR, JOINT TACTICAL COMMUNICATION, COMMAND AND CONTROL AGENCY	MR GERALD SHAMLA	JTC ³ A/C ³ A-SEET AV 229-0161
DIRECTOR, NATIONAL SECURITY AGENCY	<div></div>	NSA/R-2 (301) 859-4821
DIRECTOR, JOINT ELECTRONIC WARFARE CENTER	LTCOL JOHN OTT	JEWC/SE AV 945-2482
DIRECTOR, JOINT STAFF, OJCS	MR DON BUTTS	OJCS/C ³ SEA AV 694-7864
DIRECTOR, DEFENSE TEST AND EVALUATION, USDRE	DR DAVID ANDERSON	OSD/T&E AV 225-0472
ASSISTANT SECRETARY OF DEFENSE COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE	MR JIM ATKINSON	ASD (C ³ I) AV 225-1208

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EMPRES Data Base and Model Survey Questionnaire

1. Does your organization/facility perform analysis, computer modeling, or simulations in the area(s) of Electromagnetic Compatibility (EMC), Electromagnetic Vulnerability (EMV), C³ system/equipment performance or C³ Countermeasure (C³CM) evaluations? If yes please identify specific area(s) of involvement.
2. Is your organization the developer of, and/or the source for, analysis techniques, models, or simulations used in the areas identified in question 1? Please provide a description or a catalog, of any models or simulations developed by your organization. If possible include data as to the currency of models, when developed, status of model/simulation validation, and frequency of usage. Also differentiate between existing and planned models/simulations.
3. Identify those EMC, EMV, C³I, or C³CM models and/or simulations utilized by your organization that were developed outside of your organizations. If possible identify the original developer of the capability.
4. Does your organization provide the capabilities identified in question 2 to other DOD organizations that are involved in EMC, EMV, C³I or C³CM analysis/evaluation programs? Identify those organization involved in such transfers.
5. Is your organization responsible for the generation and/or maintenance of EMC or C³I related Data Bases; that is those data bases which are used to support the type of analysis efforts described in Question 1. Please provide a description or, a catalog of any such data bases. If possible include information as to size (number of records), currency (how often updated), data source, and classification of each such Data Base. Also differentiate between existing and planned Data Bases.
6. Does your organization provide outputs from the Data Base identified in Question 5 to other DOD organizations that are involved in EMC, EMV, C³I or C³CM analysis/evaluation programs? Identify the specific Data Bases and organizations that are involved in such transfers.
7. Identify those EMC, EMV, C³I, or C³ or C³CM related Data Bases utilized by your organization that are developed/maintained outside of your organization. Where possible, identify the organization responsible for the identified Data Bases.

Atch 3

8. Please identify each computer which is used for modeling or simulation at your facility. List the manufacturer, model number, and operation system(s) used.
9. Are your simulation and modelling computer resources currently available or planned to be made available to users not located at your facility? If so, please identify the methods used to provide access (e.g., dial-up, direct-line, ARPANET, MINET, DDN, IDHS/C, DODIIS, COINS, CIRCII, or other specified.)
10. Are the models and data bases at your facility transportable to other facilities? Identify implementation features which could limit such portability.
11. Does your facility handle and store classified data? If so, please indicate the highest-level and identify any special handling requirements. Also, for the Data Bases maintained by your facility, do you control classification and release authority for those Data Bases?
12. Please identify one technical and one administrative POC for future EMPRES correspondence.

DISTRIBUTION LIST
EMPRES DATA BASE AND MODEL SURVEY

EXTERNAL

Assistant Secretary of Defense
Command Control Communications and Intelligence
Pentagon
Washington, DC 20301

ADS(C³I)-EC
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Washington, DC 20301

USDRE/ODDTE
Attn: Dr David E. Anderson
Pentagon/RM 3D973
Washington, DC 20301

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Joint Electronic Warfare Center
San Antonio, TX 78243-5000

Director
Joint Electronic Warfare Center/SE
Attn: LtCol John Ott
San Antonio, TX 78243-5000

Director
JTC3A/C3A-AR
Fort Monmouth, NJ 07703

Director
JTC3A/C3A-SE
Fort Monmouth, NJ 07703

Deputy Director JTC3A Wash Ops
Attn: C3A-WAT (Mr J. Blackwell)
USDRE&E Mailroom
Washington, DC 20301-3160

Commander
C3CM Joint Task Force
Attn: CC/Col John M. Reeves
Kirtland AFB, NM 87117-5000

Atch 4

OJCS/C3SEA
Attn: Mr Don Butts
Pentagon/Rm 1B737
Washington, DC 20301

OJCS
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Pentagon/Rm 1D936
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USDR&E
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Washington, DC 20301

DIA/DB
DIA Center
Washington, DC 20301

DIA/VP/CM
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Washington, DC 20301

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Chain Bridge Road
McLean, Va 22101

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Warrior Preparation Center
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APO New York 09305

Air Force Space Command
Peterson AFB, CO 80914

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P. O. Box 9296
Worldway Postal Center
Los Angeles CA 90009-9260

ASD/XRM
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USAF TAWC
Eglin AFB FL 32542

ASD/XRM
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Air Force Office of Test and Evaluation
Kirtland AFB, NM 87115

HQ SAC/XPS
Offutt AFB NE 68113-5001

Directorate of Aerospace Studies
Kirtland AFB NM 87115

Foreign Technology Division
Wright-Patterson AFB OH, 45433-6508

Foreign Technology Division/TQ
Attn: LtCol John Wood
Wright-Patterson AFB, OH 45433-6508

Air Force Electronic Warfare Center
San Antonio TX 78243

Air Force Wright Aeronautical Laboratory
Wright-Patterson AFB OH 45433-6523

Air Force Weapons Laboratory
Kirtland AFB NM 87115

Rome Air Development Center
Griffiss AFB NY 133441-5700

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Washington, DC 20301

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Armament Div/EN
Eglin AFB, FL 32542

USAF Ballistic Missile Office
Norton AFB, CA 92409-6468

USAF Electronic System Div
Hanscom AFB, MA 01731-5000

DET 27 AFPRO
USAF Electronic Warfare Evaluation Simulator
GD Fort Worth Div
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Commander
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Director
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Fort Benning, GA 31905

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Redstone Arsenal, AL 35898

Commander
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Fort Monroe, VA 23651

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Commandant
Army War College
Carlisle, PA 17013

Commander
Army Ballistic Missiles Defense Organization
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Huntsville, AL 35807

Office of Missile Electronic Warfare
US Army Electronic Warfare
WSMR, NM 88002-5513

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Director
USAEWL
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Army TRADOC Systems Analysis Activity (TRASANA)
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San Diego, CA 92152

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Naval Underwater Systems Center
Newport, RI 02841

Commander
Naval Weapons Center
China Lake, CA 93555

Commander
Naval Surface Weapons Center
Dahlgren, VA 22448

Commander
Naval Intelligence Support Center
4301 Suitland Rd
Washington, DC 20390

Commanding Officer
Naval Research Laboratory
Washington, DC 20375

President
Naval War College
Newport, RI 02841

Superintendent
Naval Postgraduate School
Monterey, CA 93943

Commander
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Naval Air Systems Command
Naval Air Systems Command Headquarters
Washington, DC 20361

Chief of Naval Operations
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Navy Department
Washington, DC 20350

Chief of Naval Operations
Attn: OP-96
Navy Department
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Chief of Naval Operations
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INTERNAL

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